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ABSTRACT

This inquiry was conducted to develop indigenous research methodology aimed at minimizing the gap between educational research and practice. The intent was not to produce a final or complete solution to the problem, but rather to suggest a procedure which would provide partial closure. Alternative methods, including various types of linkage systems, as well as inductive and deductive approaches, were examined. From this examination, a process was developed which combined theoretical-deduction and empirical-induction with a procedure which had its derivation in symbolic interactionist theory and methodology. The resulting combination, referred to as "Indigenous, Interactional Research," was designed to maximize interaction between the researcher and a practitioner in analyzing educational experiences. In a field test of this process, groups of adult learners were videotaped in: (a) individualized programmed instruction, (b) group process instruction, and (c) a combination of the two. Inductive and deductive interactional analysis of the taped data resulted in the generation of decision and conclusion oriented hypotheses. Such a methodology can generate indigenous hypotheses and theories relevant to the improvement of both educational research and practice. (Author/DG)

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# INDIGENOUS, INTERACTIONAL RESEARCH

James A. Farmer, Jr.*

## ABSTRACT

The objective of the inquiry was to develop indigenous research methodology aimed at minimizing the gap between educational research and practice. The intent was not to produce a final, or even a complete solution to the problem, but rather to suggest a procedure which, if employed, would provide partial closure.

Alternative ways to bridge the gap were examined, including various types of linkage systems as well as inductive and deductive approaches. Growing out of this examination, a process was developed which combined theoretical-deduction and empirical-induction with a procedure which had its derivation in symbolic interactionist theory and methodology. The resulting combination, referred to as "Indigenous, Interactional Research," was designed to maximize interaction between the researcher and a practitioner in analyzing educational experiences.

In a field test of this process, groups of adult learners were videotaped in: (a) individualized programmed instruction, (b) group

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process instruction, and (c) a combination of the two. Inductive and deductive interactional analysis of the taped data resulted in the generation of decision and conclusion oriented hypotheses.

Such a methodology can generate indigenous hypotheses and theories relevant to the improvement of both educational research and practice.

# INDIGENOUS, INTERACTIONAL RESEARCH

James A. Farmer, Jr.

## Objectives

The main objective of the inquiry reported in this paper was to identify, adapt, and/or develop and field test a research methodology which could potentially minimize the gap between basic educational research and educational practice. Research utilizing such a methodology, it was hoped, would yield decision and conclusion oriented findings which were generated concurrently and which, therefore, would be more compatible with each other than findings resulting from conclusion oriented research and decision oriented research conducted separately.

## Problem: A Gap to Bridge

Rapid advancement in the field of education could be anticipated if applied research were all that is needed to make such progress. Applied research arises from the inability of practitioners to achieve some practical goals and derives its justification "from its orientation towards the achievement of these goals (Carroll, 1968; p. 267)." Such research has also been referred to as "decision oriented" (Cronbach & Suppes, 1969) research since it has as its main purpose the provision of information to a decision-maker. The relationship between the researcher and the practitioner can be a good one in applied research. In a description of action research, one form of applied research, Fox (1970) has indicated that the fact that the focus of this type of research is on the local situation and the solution of local problems tends to limit the generalizability of the results of such research. He has pointed, however, to the relationship which can exist between the researcher

and the practitioner in action research as a distinct advantage. According to Fox:

> The well-planned action research project involves both practitioner and researcher. The practitioner has been in on the research at all stages, and if the research was successful he knows this and is generally willing to accept the research findings (pp. 97, 100).

As valuable as applied research can be, however, it alone cannot service the full range of research needs in education. Advances in educational practice which result from applied research are ultimately dependent upon advances in basic research in the field. Carroll (1968) has observed:

> It is doubtful, in educational research, that we can move ahead to effective educational engineering without an adequate base in fundamental research.... Particularly where applied research seems to be yielding diminishing dividends, we must turn to basic research on the phenomena in which we are interested. I would propose that such research be called basic educational research, and that it be thought of as a part of basic science.
>
> It can be easily demonstrated that many of the most fruitful developments in applied educational technology would have been well-nigh impossible without an adequate foundation in basic research. At the same time, some of these same developments have now reached a point of decreasing returns such that they need a new infusion of results from basic research. A good example is the history of so-called programmed instruction (pp. 272-3).

Basic research which potentially can make possible a better understanding of phenomena underlying educational practice generally takes its direction from the investigator's commitments and hunches. Because of this characteristic, it has recently been referred to as "conclusion-oriented" inquiry to differentiate it from "decision-oriented" inquiry (Cronbach & Suppes, 1969). A lack of positive relationship between the basic researcher and the practitioner in education can develop, however, when basic research is undertaken. Fox (1970) has described both the nature of this difficulty and

results of it as follows:

> Basic research typically is planned independently by a researcher. Once that plan is complete he then uses research principles to select a sample of settings in which he would like to do his research. But the research is his, the practitioner is there to function as directed, and is often seen as "the enemy" who can thwart the researcher by not functioning in accordance with the research needs. Therefore, the practitioner, even in those settings in which basic research has been done, typically sees it as an abstract and even threatening phenomenon (p. 100).

Certainly the right of the basic (or conclusion oriented) educational researcher to conduct inquiries free from the constraints typically incurred by the decision oriented researcher needs to be maintained. But is it necessary for basic educational research to be conducted in a way that results in an increased gap between basic research and practice in education? Or can the independence required for such inquiry be maintained if basic educational research is restructured to maximize the relationship between the basic researcher and the practitioner and, consequently, minimize the gap between basic research and practice in education? The inquiry which is reported in this paper started with such questions, and proceeded to an examination of the literature to identify alternative ways to deal with the relationship between basic educational research and practice and to bridge the gap between the two.

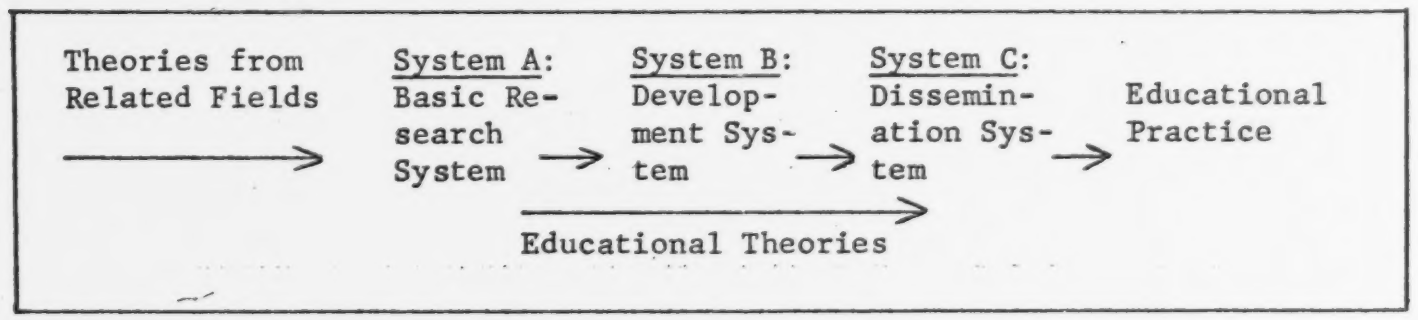
## Alternative Ways to Bridge the Gap

Of particular help in this process was a recent report, Educational Research and Development in the U.S., published by the HEW, Office of Education (1969). The report noted that there is not much literature on the relationship of research to development, or of development to research, or on the relationship of both to the improvement of education. According to

the report, the models which do exist tend to fall into the following three main categories:

> (1) The first category tends to view the goal of educational improvement as being dependent upon adequate diffusion mechanisms which require the invention and development of tested innovations to diffuse, and which in turn depend upon the adequacy of the research base. Such models as these can be called linear or dependency models. The most representative and well-known example...is that developed by Guba and Clark.
>
> (2) A second type of model sees essential differences and disconnection between the research, development, and dissemination functions.... The most recent example of this kind of model is that developed by Hendrick Gideonse.
>
> (3) A third category...might be designated by the term "linkage." In this kind of model the close interrelations of research, development, and disseminations are stresses.... Models in this category may have a tendency to be performer-oriented and to stress the importance of individuals in a research-development-dissemination continuum. (This type of model is represented by the writing of Norman Boyan, of Robert Glaser, and of Raisbeck) (pp. 5-6).

These models indicate basic ways by which education has attempted to bridge the gap between research and practice. Each seeks to solve the problem by redefining and/or improving the relationship between three <u>separate</u> systems, as indicated in Figure 1.




<u>Figure 1</u>. Linkage between three separate systems to relate theory and practice in education.

While the characteristics of one or more of the models presented in the report may seem theoretically attractive, the results which have been achieved to date from their use are less than encouraging. Fox (1970) has observed:

> We have ample research in some of the (areas of education), although little research in others. But the intriguing thing is how seldom changes are based on the research, and how seldom the research stimulates change, or how seldom change is delayed until there is a research basis for deciding if and how change should occur (p. 72).

From this account it would seem that the flow of information from system to system is frequently not operating adequately. Perhaps the fact that the systems are envisaged as separately functioning, albeit linked entities is a source of difficulty. More must be linked, it would seem, than just what each system produces. Perhaps a more adequate relationship can be established between research and practice through systemic rather than linear linkage. Such an approach would call for a system which would make it possible to achieve not only desired change in educational practice but also similar change in the structure of knowledge concerning education simultaneously. One way of depicting such an interrelationship is indicated in Figure 2.

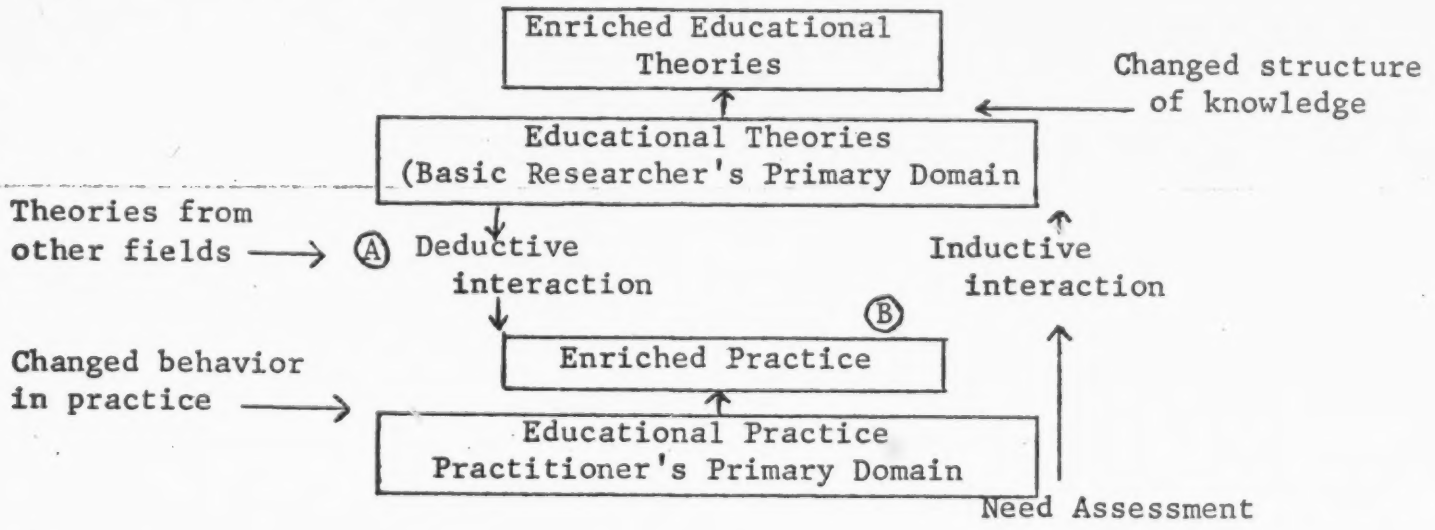



Figure 2. Relationship between Theory and Practice in Education

From the point of view reflected in Figure 2, the nature of basic educational research and its relationship to educational practice can be seen primarily as a deductive process, an inductive process, or a combination of the two. The relative advantages and disadvantages of each are considered below.

1) Basic Educational Research as a Deductive Process

Basic educational research can be seen primarily as a deductive process in which theories from other fields are analyzed and utilized in order to more adequately understand education. In turn, some form of "linkage" procedures is needed to relate the results to educational practice. Carroll (1968) specified such a function for basic educational research when he stressed the importance of establishing an adequate base for education through basic research in "mathematics, computer science, genetics, physiology, psychology, sociology, anthropology, and other relevant disciplines" (p. 272). Such an approach can be represented as Position "A" in Figure 2. Difficulties inherent in the deductive process, however, were stressed many years ago by William James (1901), who cautioned:

> I say moreover that you make a great, a very great mistake, if you think that psychology, being the science of the mind's laws, is something from which you can deduce definite programmes and schemes and methods of instruction for immediate classroom use. Psychology is a science, and teaching is an art; and sciences never generate arts directly out of themselves. An intermediary inventive mind must make the application, by using its originality (pp. 7-8).

If basic educational research is envisioned exclusively as a deductive process which has as its main purpose the incorporation of theories from other fields into the field of education, it is faced with a difficult, if not insurmountable, task. Conducting such research independently of the practitioner would seem to add to the difficulties. The product may be

inherently so incompatible to educational practice and the practitioner that no linkage system can adequately relate the one to the other.

2) Basic Educational Research as an Inductive Process

Some go a step further than James and describe basic research as primarily an inductive process. For example, Garfinkel (1967) has refused to given serious consideration to theoretical formulations "obtained outside actual settings within which such properties are recognized, used, produced, and talked about by settings' members (p. 33)." From such a point of view, basic research focuses on practical activities and commonplace circumstances as topics of empirical study. Position "B" in Figure 2 represents such an approach. Certainly there would seem to be some advantages if such a way of viewing research were utilized in educational research. For example, purely inductive, basic research in education might well provide findings which are closely related to the "organic needs" (Knowles, 1969) of the field. Further, as with action research, such an approach could involve positively both the researcher and the practitioner. But, at the same time, it would tend to share the limitations of action research since neither are designed to link back to previously developed theories in education or related fields.

3) Basic Educational Research as an Inductive-Deductive Process

A third approach focuses on the practical without excluding theories from related fields. Goodlad (1968) has indicated some of the central characteristics of such an approach as follows:

> Advancement of a field calls for productive interplay between two modes of thought: the theoretical deductive and the empirical-inductive, often within the mind of one scientist (Conant). Second, educational practices provide both the problems for educational inquiry and the "field" for testing and

> verifying conclusions (Dewey). Third, fluid inquiry reshapes a field, serving to monitor the course of stable inquiry, pose alternatives, and maintain the necessary tension of productive uncertainty (Schwab). Fourth, inventing or innovating in the practice of education involves a blending of theoretical-deductive and empirical-inductive inquiry. (p. 11)

Despite Conant's claim that a blending of the theoretical-deductive and the empirical-inductive can take place in the mind of one scientist, there would seem to be considerable advantage when the interplay is conducted on a social basis. According the Campbell (1969):

> The locus of scientific knowledge is social. Moving the problem of knowledge from a solitary viewer's vision to language is a step, but the implicit model is still usually a single native speaker with perfect knowledge of a stable language. Sufficient attention is not yet given to the social and incomplete conditions of language learning, to the fundamental idiosyncracy and errorfulness of functional individual lexicons, to the very partial distribution of words that are still somehow "in" the language, to the effective redundancy which makes imperfect language as competent as it is. When these have been assimilated, the locus of "truth" and "knowledge" will have clearly shifted from individual "minds" to a collective social product only imperfectly represented in any one mind. (p. 331)

> Even within disciplines, disciplinary competence is not achieved in individual minds, but as a collective achievement made possible by the overlap of narrow specialties.... For an integrated and competent social science, we need to invent alternative social organizations which will permit the flourishing of narrow interdisciplinary specialties. (p. 348).

It would seem, therefore, that advancement in the field of education can most adequately be made possible, not by individual minds or by separate research, development, and dissemination systems, but by a theoretical-deductive and empirical-inductive interplay between researchers and practitioners. Such a process is a type of symbolic interaction. From it, meanings can be produced which are grounded in and emerge out of the interaction of

persons involved in different systems. Concerning symbolic interaction in general, Blumer (1969) has observed:

> Symbolic interactionism does not regard meaning as emanating from the intrinsic makeup of the thing that has meaning, nor does it see meaning as arising through a coalescence of psychological elements in the person. Instead, it sees meaning as arising in the process of interaction between people....
>
> (Meanings are seen)...as social products, as creations that are formed in and through the defining activities of people as they interact (p. 4).

Such an interpretation of the way in which meanings are generated was used by the writer of this paper to design a social process which would facilitate symbolic interaction between basic researchers and practitioners in education.

In such a process, meanings concerning a lack of understanding of some given set of phenomena in education, which is of primary concern to a basic educational researcher, can be "grounded" by the contribution of the interaction with the practitioner. At the same time, practical goals of particular concern to an educational practitioner can be "grounded" in the educational theories and even theories from related disciplines through interactions with the researcher. Of more importance, both conclusion and decision oriented hypotheses can be generated concurrently through the interaction of the researcher and the practitioner. Bergin and Strupp (1970) have strongly urged a similar type of collaboration between researchers and practitioners in the field of psychotherapy.

> We need improved communication between clinicians and researchers, and between researchers of divergent theoretical orientations. Scriven (1964) is correct in asserting that progress in psychology is hampered not by a lack of knowledge but rather by a surfeit of common sense knowledge shared by all individuals. The therapist, above all, is an expert in decoding

> scrambled human communications which the patient continually sends to himself and others. This fund of knowledge is impressive, but it is largely ignored by researchers and others who restrict their focus to observed behavior.... The point is that clinicians and therapists build as yet insufficiently on each other's work, and because of theoretical or termperamental blinders they reject data which colleagues in other camps have to offer .... A wedding of clinical observation and research operations has yet to occur. From everything that has been said, it follows that significant increments in knowledge, at least within the therapeutic framework, are likely to come from the intensive study of individual cases in which disciplined observation is complemented by, and takes account of, the complex interaction of variables, a task which cannot be accomplished by statistical manipulations, although certain statistical techniques may be helpful in other respects. (p. 23)

Such a relationship between researchers and practitioners, whether it is in education, psychotherapy, or in some other field, can be portrayed through the utilization of what Campbell (1969) has called a "Fish-scale" model (see Figure 3). While researchers and practitioners would seem, of necessity, to have a central place in such a model, it would seem that others who have a role in the interaction which generates meanings in education can be represented on different rows of scales in the model. These would include specialists in related disciplines, on the one hand; and on the other hand, learners, paraprofessionals, and community representatives.

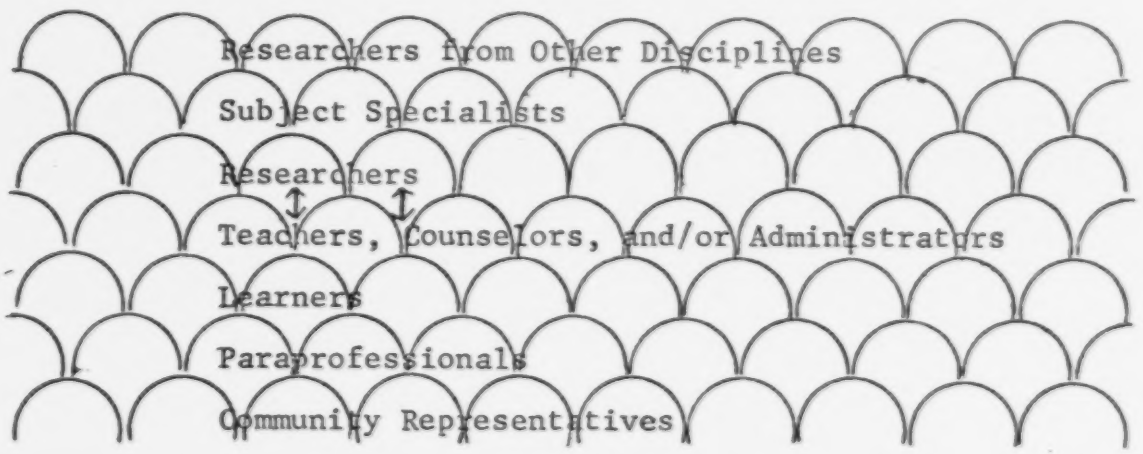



Figure 3. Educational Fish-scale Model. (Based on Campbell's Fish-scale Model for Omniscience,1969, (pp. 328-348)

In short, in this approach the problem of the current gap between educational research and practice is placed on the agenda to maximize researcher-practitioner interaction in order to yield more indigenous, educational hypotheses and theories.

While the primary focus of such inquiry is on educational practice, the symbolic interaction between the researcher and the practitioner consists of theoretical-deductive and empirical-inductive interplay to allow inquiry which is indigenous to both conclusion and decision oriented inquiry concurrently. The resulting methodology can be referred to as "Indigenous, Interactional Research." Position "C" on Figure 4 represents such a process.

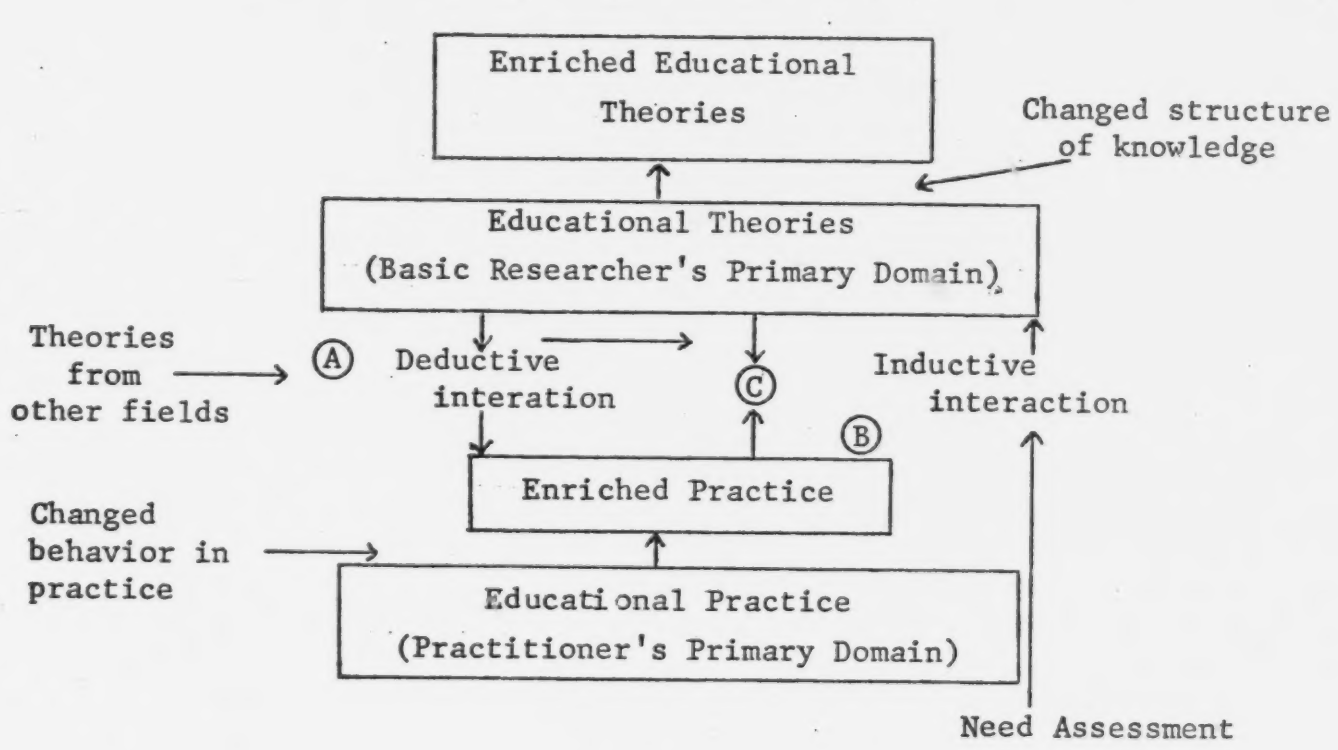



Figure 4. Relationship between Theory and Practice in Education

Field Testing the Indigenous, Interactional Research Methodology

Using such symbolic interactionist theory and methodology, a field project was designed jointly by the writer, whose main concern was that of basic educational research, and an educational practitioner, Mrs. Elsie Withey, Coordinator, The Individual Study Laboratory, Central City Occupational Center, Los Angeles, California. The project was designed to: (a) allow exploration and inspection (Blumer, 1969) of educational experiences, and (b) maximize interaction between the researcher and the practitioner in the analysis of the data.

Subjects for the study were selected through dimensional sampling (Arnold, 1970) of adult learners at the Central City Occupational Center in Los Angeles. Naturalistic data was obtained by videotaping small groups of subjects while they were engaged in: (a) individualized programmed instruction; (b) classes which utilized group process; and (c) educational experiences which combined aspects of both group instruction and individualized programmed instruction.

In the inspection of the data on the videotapes, the researcher and the practitioner used both theoretical-deduction and empirical-induction. At first, there was considerable disagreement between them about the meaning of the data viewed. But as concepts and theories drawn from both educational practice and from other disciplines were considered and as each specified what he saw and what data meant from his perspective, new meanings emerged for both.

Before viewing the videotapes a second time, both the practitioner and the researcher formulated intermediate hypotheses which became the focal point for the reviewing of the videotapes. After the second examination of the tapes, the practitioner and the researcher again interacted to

reformulate the hypotheses. This process can be likened to "recycling" in "Strong Inference" (Platt, 1964). Repeated recycling, with interaction and reformulation of hypotheses taking place between each cycle, led to decision and conclusion oriented hypotheses which were seen by both as having been generated indigenously from the data through interaction.

Throughout the process, primary focus was not placed on trying to break down the complex phenomena viewed into simpler parts, but on attempting to put together a series of diverse observations into a unity of relationship (Madge, 1969). At each stage, the practitioner paid particular attention to consideration of ways to improve educational programs and procedures based on what was seen and experienced in the research process. The researcher was concerned principally with seeking to understand more fully: (1) the relationship between group process and individualized, programmed instruction; and (2) the nature of the interactional process in which he, as the researcher, and the practitioner were engaged.

The type of perspectives and hypotheses dealt with at various stages of the recycling process are illustrated below.

STAGE I

Preliminary Perspectives

1. The practitioner believed in the superiority of individualized, programmed instruction over group instruction.
2. The researcher believed, from a theoretical basis, that both individual and group instruction had valuable contributions to make to the learning process.

STAGE II

Intermediate Hypothesis

"Persons in the individualized instructional setting are actually interacting with each other in the learning process."

Re-examination of the tape confirmed this hypothesis to the satisfaction of both the researcher and the practitioner. At various points in the tape it could be observed that learners had turned from their individualized instruction booths to neighboring learners to ask or answer questions about subject matter being studied.

STAGE III

Hypothesis

"Learners will be able to utilize the Learning Laboratory more effectively if opportunities for individualized programmed instruction are interspersed with group instruction and other opportunities for learner-learner interaction."

The researcher could then test this hypothesis by using a control group which had no opportunity for interaction. In turn, the practitioner could use the results of this research as the basis for modifying instruction offered in the Learning Laboratory.

As an additional outgrowth of this project, the practitioner has become involved in several educational innovations dealing with the interrelationship between individualized and group learning. Also, as a result of this project, the researcher has begun research dealing with several hypotheses which emerged from the symbolic interaction between himself and the practitioner while viewing the research videotapes.

Implications

The primary advantages of Indigenous, Interactional Research would seem to be the following:

1. Such research is capable of producing indigenous educational hypotheses generated through inductive and deductive interaction between researchers and practitioners in relation to naturalistic educational data.
2. Hypotheses generated by this process would seem to be particularly valuable in understanding, controlling, and predicting educational practice.
3. Hypotheses produced by this kind of research can be used by practitioners in program planning (Coladarci and Getzels, 1955).
4. Causal explanations can be inferred from analyzing the type of non-experimental data dealt with in this type of research through the use of path analysis (Wittrock, 1969).

Indigenous, Interactional Research, as described in this paper, cannot be expected, of course, to completely close the gap between basic research and educational practice. By supplementing other types of basic and applied research, however, Indigenous, Interactional Research can provide a way to minimize that gap.

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